IN THE CLAIMS:

Please cancel claims 2, 4, 7 and 9.

Please amend the claims to read as indicated herein.

1. (Currently amended) A vector-detecting apparatus that detects an in-phase component and a quadrature-phase component of a pre-determined frequency signal, said apparatus comprising:

a first filter; and

a second filter whose impulse response is orthogonal to said first filter,

wherein an output of said first filter is regarded as the in-phase component of said pre-determined frequency signal, and output of said second filter is regarded as the quadrature-phase component of said pre-determined frequency signal,

wherein an impulse response of said first filter is weighted by a sine function of the frequency of the pre-determined frequency signal and an impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined frequency signal, and

wherein said first filter and said second filter are digital filters~~, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal~~.

2. (Canceled)

3. (Currently amended) A vector-detecting apparatus that detects an in-phase component and a quadrature-phase component of a pre-determined frequency signal, said apparatus comprising:

a frequency converter for converting said pre-determined frequency signal to a signal under test;

a first filter; and

a second filter,

wherein said first and second filters filter an output signal of said frequency converter and whose impulse responses are orthogonal to each other, and wherein an output of said first filter is regarded as the in-phase component of said ~~pre-determined frequency~~ signal under test, and an output of said second filter is regarded as the quadrature-phase component of said ~~pre-determined frequency~~ signal under test.

wherein an impulse response of said first filter is weighted by a sine function of the frequency of said ~~pre-determined frequency~~ signal under test after frequency conversion by said frequency converter, and an impulse response of said second filter is weighted by a cosine function of the frequency of the ~~pre-determined frequency~~ signal under test after frequency conversion by the frequency converter, and

wherein said first filter and said second filter are digital filters~~, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal~~.

4. (Canceled)

5. (Currently amended) The vector-detecting apparatus according to claim 3, wherein a ratio of the frequency of said pre-determined frequency signal ~~before conversion by said frequency converter and the frequency after conversion by said frequency converter~~and said signal under test is an integer of 2 or higher, and wherein a ratio of the frequency of a local signal inputted into said frequency converter and said signal under test is an integer of 3 or higher.

6. (Currently amended) An impedance measuring apparatus comprising a vector-detecting apparatus, wherein said vector-detecting apparatus comprises:

a first filter and a second filter whose impulse responses are orthogonal to each other;

wherein an output of said first filter is regarded as an in-phase component of a pre-determined frequency signal, and an output of said second filter is regarded as a quadrature-phase component of said pre-determined frequency signal.

wherein the impulse response of said first filter is weighted by a sine function of

the frequency of the pre-determined frequency signal and the impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined frequency signal, and

wherein said first filter and said second filter are digital filters~~, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal~~.

7. (Canceled)

8. (Currently amended) An impedance measuring apparatus that measures an in-phase component and a quadrature-phase component of a pre-determined frequency signal, said apparatus comprising:

a frequency converter;

a first filter; and

a second filter, wherein said first and second filters are capable of filtering an output signal of said frequency converter and whose impulse responses are orthogonal to each other,

wherein an output of said first filter is regarded as the in-phase component of said pre-determined frequency signal, and an output of said second filter is regarded as the quadrature-phase component of said pre-determined frequency signal.

wherein the impulse response of said first filter is weighted by a sine function of the frequency of the pre-determined frequency signal after frequency conversion by said frequency converter and the impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined frequency signal after frequency conversion by said frequency converter, and

wherein said first filter and said second filter are digital filters,~~ and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal~~.

9. (Canceled)

10. (Currently amended) The impedance measuring apparatus according to claim 8, wherein a ratio of the frequency of said pre-determined frequency signal ~~before conversion by said frequency converter and the frequency after conversion by said frequency converter~~ and said signal under test is an integer of 2 or higher, and wherein a ratio of the frequency of a local signal inputted into said frequency converter and said signal under test is an integer of 3 or higher.